Cloud water and throughfall deposition of mercury and trace elements in a high elevation spruce–fir forest at Mt. Mansfield, Vermont

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As part of the Lake Champlain Basin watershed study of mercury (Hg) and pollutant deposition, cloud water

young trees, and open gaps created by wind throw or forest dieback. The average canopy height is approximately 7–10 m which decreases rapidly near the elevation limit of this forest at about 1200 m. Meteorological measurements are made in an open area adjacent to several buildings which service radio and television transmitter towers at the summit. The site receives an annual average of 174 cm of precipitation (1955–1998) which is twice the annual average of 87 cm (1955–1994) at Burlington, Vermont, a low elevation site (101 m) located on the eastern shore of Lake Champlain.[29] The weather during our sampling period (August 1–October 31, 1998) was representative of average conditions during this time of the year at Mt. Mansfield.[29]

Cloud water and throughfall collection

Cloud water was sampled using a passive Teflon string collector (Fig. 1) designed for this study.[28] The cloud water collector was installed just above the timberline on the western slope of Mt. Mansfield, near the summit, allowing direct interception of ambient clouds. Cloud throughfall was sampled with three replicate pairs of funnel collectors (each pair consisting of one glass and one polypropylene funnel; 182.4 and 167.55 cm^2 collection area, respectively) placed under the canopy of the mature spruce–fir forest spaced approximately 15–20 m apart in random directions .7(of)-1.1634r
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cloud water, throughfall, and net deposition displayed are for four events only. Estimated deposition for the three-month sample period (August 1–October 31, 1998) is shown on the last line, and was calculated using the mean deposition rate of cloud water (0.42 mm h

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